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CHAPTER 20
MODERNIZATION OF STRUCTURE OF FINANCIAL SYSTEMS WITH THE DEVELOPMENT OF FINTECH

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INTRODUCTION

In a general sense, the financial system is a collection of financial instruments, markets, institutes that provide a redistribution of financial resources between economic agents who have a scarcity or surplus of funds. The basic functions of the financial system are the accumulation of temporarily redundant funds and their transformation into investments; risk management; information function; monitoring; reduction in business expenditures[1]. Their effective implementation creates favorable conditions for growth of well-being. However, the functions of the financial system are relatively stable in time and space, while financial institutes are transforming and their functions are changing[2]. The sphere of their activity – the financial system – remains unchanged. This is due to the fact that under the influence of globalization, technological change and innovations, the financial system acquires new characteristics, properties, elements, as new financial instruments and innovations appear in the financial environment, and shifts in demand for them occur. As a result, competition between financial instruments and financial innovations leads to the expansion of functionalities of the financial system, increases the efficiency of its functioning and modifies the role of the financial system in the economy.

Features of the implementation of the functions of the financial system determine the nature of its functioning, which depends on structural and organizational characteristics. The structure characterizes the composition of the financial system, the nature of the relationships of its segments and the elements that ensure its integrity, the preservation of

[1] Stiglitz, J. (1998) More Instruments and Broader Goals: Moving toward the Post-Washington Consensus. *WIDER Annual Lectures* 2. Helsinki, NU/WIDER.

[2] Merton, R. C., Bodie, Z. (1995) A conceptual framework for analyzing the financial environment. In Crane, D. B., Froot, K. A., Mason, S. P., Perold, A., Merton, R. C., Bodie, Z., Sirri, E. R., Tufano, P. (Eds.), *The global financial system: A functional perspective*. Boston, MA: Harvard Business School Press.

properties in internal and external changes. Organization of the financial system reflects the differentiation of its components, their functioning and behavior. This is the internal structure of the financial system, a form of organization of financial relations through financial institutes. Financial institutes are heterogeneous and they dynamically change under the influence of technological, economic, political, social, socio-cultural, and environmental factors. Today, digitalization and the transformation of values in the context of sustainable development have a significant impact on the development of financial institutes. The transformation of financial institutes changes the functions they perform,which transforms the financial system as a whole.

Traditionally, the architecture of a national financial system reflects its internal structure regarding the economic nature and role of the stock market and banking institutions, as well as the nature of information asymmetry that determines the economic behavior of agents[3]. However, different financial institutes will differently ensure the implementation of the basic functions of the financial system and will differently affect the financial and economic decisions of the entities, dynamics and structure of the economy as a whole[4]. Nevertheless, the traditional approach to defining the architecture of the national financial system in modern conditions needs clarification. This is due to the fact that as a result of global instability and uncertainty, rapid development of information technology (IT), a new financial ecosystem is formed. It is a system of interaction between financial service providers, regulators, consumers on the basis of competition and cooperation in order to meet the needs of the customer-consumer. However, both financial and non-financial institutions, such as FinTech companies or BigTech companies, can act as of financial service providers.

Thus, it should be noted that there are fundamental changes in the usual nature of the functioning of financial systems based on digital transformation and decentralization of major financial processes. Accordingly, the issue of research into the development of national financial systems under the influence of technological change and the rapid spread of the latest information and communication technologies is relevant and needs further research.

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[3] Boot, A., Thakor, A. (1997) Financial System Architecture. *Review of Financial Studies,* vol. 10, pp. 693–733.

[4] Lomachynska I. A. (2011) Arkhitektura finansovoi systemy Ukrainy: teoretychni osnovy optymizatsii v suchasnykh umovakh [Architecture of the financial system of Ukraine: theoretical basis of optimization in modern conditions]. *Socio-Economic Research Bulletin*. 41(2). P. 244–249.

20.1. The evolution of financial technologies and the development of the financial system

Financial Technologies (FinTech) are one of the meaningful forms of financial innovations that describe the outcome of an innovative process on the creation of new products, services, technologies for making profit, reducing risk, improving the efficiency of financial operations. Although it should be noted that financial technologies are the basis for the development of other forms of financial innovations, such as financial products, financial services, organizational forms, etc.

A survey of 200 specialized works has made it clear that FinTech is an industry that uses information technologies to improve its financial performance[5]. These include new applications, processes, products, business models in the financial services industry, consisting of one or more additional financial services and are provided as a comprehensive process over the Internet. The main distinctive features of FinTech compared to technological or scientific innovations are legal unpatentability, short lead time, decomposability and adaptability, multiple stakeholder involvement but with limited customer involvement[6]. As a rule, FinTech is introducing new ways of doing financial activities or changing existing ones. This, in turn, contributes to convenience, speed, cost reduction, and creates networks that can easily connect people with common interests, in particular those who have something and those who are looking for, or those who are looking for partners for total consumption (for example, the sharing economy). In addition, the emergence and spread of FinTech lead to a reduction in operational risks, their diversification, increased liquidity, an increase in sources and instruments of financing, etc. In terms of economic theory, FinTech is the result of market players trying to overcome such constraints as transaction costs, information asymmetry and other forms of market misunderstandings in addition to shareholder profit motives[7].In our opinion, beyond the technological capabilities, the expansion of FinTech is driven by customer expectations, especially given that millennials are growing their share. Nevertheless, the leading role in the spread of FinTech is played by the development of IT, which forever changed the principle of interaction between financial entities,

[5] Schueffel, Patrick. (2017) Taming the Beast: A Scientific Definition of Fintech. Journal of Innovation Management, 4 (4), pp. 32–54.

[6] Khraisha T., Arthur K. (2018) Can we have a general theory of financial innovation processes? A conceptual review. *Financial Innovation*, 4, doi: https://doi.org/10.1186/s40854-018-0088-y

[7] Ibid.

contributing to the simplification of everyday life of ordinary consumers and the activities of large corporations. A feature of modern IT is that it partly dictates the future direction of improvement and development of innovations.

Despite the rapid spread of FinTech, there is mixed opinion in the specialized literature. FinTech supporters widely acknowledge its benefits, while others point to abuse or misuse of financial technologies, leading to instability and financial shocks (such as the 2008 global crisis)[8]. In addition, it should be acknowledged that financial technologies complicate transactions, and this may adversely affect financial transaction participants. However, it should be noted that today the distribution of FinTech is an irreversible process.

Although the term «financial technologies» appeared in the early 1990s, FinTech has a long history of development. There are three stages of evolution: FinTech 1.0 (1866–1967), FinTech 2.0 (1967–2008), FinTech 3.0 (2009 – present)[9];[10].

Stage FinTech 1.0 began with the commercial use of the telegraph in 1838 and the laying of the first transatlantic telegraph cable in 1866 that connected Western Europe with North America, as well as the creation of a telecommunication payment processing system Fedwire (Federal Reserve Wire Network) in the USA (1918). This made it possible to instantly link the major financial markets of London and New York, which subsequently spread to other financial centers in Europe and Asia over the decades.

The period of 1867-1914 is marked as the first period of financial and economic globalization, marked by the formation of the basis of technological infrastructure. The development of telegraph, railroads, canals and steamships has facilitated the rapid completion of payments and transactions, and the exchange of financial information worldwide. On the other hand, the financial system needed to provide development of these technologies with the necessary resources. This contributed to the rapid development of financial technologies during this period. But the First World War and the collapse of the stock market in 1929, and

[8] Boz E., Mendoza E. G. (2014) Financial innovation, the discovery of risk, and the US credit crisis. *Journal of Monetary Economics*, vol. 62(C), pp. 1–22, doi: 10.1016/j.jmoneco.2013.07.001

[9] Douglas W. Arner, Janos Barberis & Ross P. Buckley. (2016) The Evolution of FinTech: A New Post Crisis Paradigm? *University of Hong Kong Faculty of Law Research Paper,* no. 2015/047.

[10] Lomachynska I. A. (2018) Finansovi tekhnolohiyi ta yikh vplyv na rozvytok finansovoyi systemy [Financial technologies and their influence on the development of the financial system]. *Innovative Economics: Theoretical and Practical Aspects*. Iss. 3. Kherson: OLDI-PLUS, pp. 188–201.

then the Great Depression, halted further development over the next 25 years.

The next milestone in FinTech's development was associated with the onset of the Second World War, when a significant number of codes were developed for secure communications, primarily for military operations.

The major boom in innovation in the financial sphere took place until the second half of the 20th century, when large financial centers (New York, London) were in rapid evolution. It was the period of a significant diversification of existing and emergence of new operations, services, tools, and later rapid improvement of computer technologies. All this was a response to the current situation in the markets: unsteadiness and volatility of exchange and interest rates, constant reformation of tax rules and regulation of financial activity, unpredictable changes in inflation and other macroeconomic indicators. In 1967, the digitalization of analog systems in digital environments started, which was the beginning of the second stage of FinTech development (FinTech 2.0).

An important invention was the automated teller machine (ATM), which was based at Barclays Bank (the United Kingdom). Another important invention was Texas Instruments' portable calculator TI 2500 Data Math, released in 1972, which was the forerunner of the modern smartphone. In 1967, the digitalization of analog systems started. In 1968, the Inter-Computer Bureau (the basis of today's BACS (Bankers' Automated Clearing Services)) was created in the UK, and in 1970, the United States created the CHIPS (Clearing House Interbank Payments System). During this period, the early FinTech technologies, which are widespread today, are progressively developing.

One can also note the following trends from the early 1970s to the late 1980s[11]: the creation of domestic and international payment systems, in particular, SWIFT (Society for Worldwide Interbank Financial Telecommunications), which provides a communication channel between financial institutions that facilitates high volume of cross-border payments between them; in 1971, NASDAQ, the world's first digital exchange, was created; by the 1980s, paper documents were replaced by electronic documents, internal risk management IT technologies were being developed and implemented; the 1980s marked the beginning of

[11] Douglas W. Arner, Janos Barberis & Ross P. Buckley. (2016) The Evolution of FinTech: A New Post Crisis Paradigm? *University of Hong Kong Faculty of Law Research Paper*, no. 2015/047.

the Internet banking in parallel with the advent of the Internet; in the early 1980s, Michael Bloomberg developed a computerized information analysis system for traders, and later launched an online stock trading service; In the 1990s, Internet giants such as Amazon, Google, and Alibaba began to emerge, introducing FinTech to optimize their work.

In the period of 1987-2008, traditional digital financial services are being developed, and financial markets are being liberalized and deregulated. More and more financial transactions are carried out over the Internet. By the beginning of the 21st century, internal processes of financial institutions, interaction with outsiders and retail customers have become fully digitalized. By 2005, the first direct banks without physical branches (ING Direct, HSBC Direct) appeared in the United Kingdom.

Particularly rapid development of FinTech occurred in the third era of FinTech 3.0 after the 2008 global crisis, as it is during the crisis that problems start to be solved with startups. The crisis caused massive job cuts in the financial sector, forcing people to seek new opportunities. At that time the FinTech startups, led by highly skilled unemployed people, began to emerge. A feature of FinTech 3.0 is that financial services are starting to be provided by non-financial institutions, including BigTech companies. At the same time, the level of trust in BigTech companies has been higher than that of traditional financial institutions and it is increasing[12].

Modern FinTech, which is driven by the fact that the Internet (including the mobile Internet, particularly, 4G) has become widespread, social networks are rapidly evolving, mobile devices and mobile applications are expanding, there is a need for new alternative payment systems, funding sources, areas of investment, characterized by the latest principles of operation through information technology. At the same time, New Tech creates many prospects for using FinTech. As a result, you can automatically collect, organize and process large amounts of information, easily connect people with common interests to the network, such as virtual mini-markets, closer and more convenient to link private demand and private supply, etc. Consequently, the transformation of economic and financial relations on the basis of digitalization and decentralization of financial processes, personification of financial services, which provides the development of new ways of

[12] MEDICI. (25 June 2015) Survey shows Americans trust technology firms more than banks and retailers. Retrieved from: https://gomedici.com/survey-shows-americans-trust-technology-firms-more-than-banks-and-retailers/ (accessed 12 October 2019)

interaction of manufacturers of financial products with consumer demand in real time, are performed.

The center of financial relations and processes modernization as a result of FinTech's development is the consumer. FinTech is changing the way it produces, distributes, exchanges, consumes financial services, the business model in the financial sector, consumer expectations and behavior, which generally leads to a modification of the financial system's functions and essentially to business models in all areas related to financial transactions, changes to the financial regulation system, etc. The role of traditional financial institutions is diminishing, their strategies and business models are increasingly customer oriented, and the design of financial products is determined on the basis of aggregated personalized values, historical trends, including non-financial, cognitive calculations.

Initially, the term FinTech applies only to the back-end system of financial institutions, however, with the passage of a more consumer-oriented service, they have extended to any technological innovation and automation of the financial sector, including financial literacy, consulting, education; capital management; lending and borrowing; retail business; fundraising, money transfers / payments; investment management, etc. FinTech enhances the efficiency of existing processes, launches brand new ones, creates systems of customer loyalty and interest.

Today, you can see FinTech improves traditional financial services and shapes the new landscape of the financial ecosystem, which is not based on traditional banks, investment and insurance companies, stock exchanges as those that transform savings into investments, but on the only technology platform on the basis of Blockchain and DLT, Machine Learning and Artificial Intelligence (AI) algorithms, online and offline access to financial services, effective remote communication (smartphone, biometric identification, cloud storage, mobile applications, chatbots, online assistants, social networks). This technologic platform should become a viable manager of a new financial ecosystem that balances the supply of financial products with demand for them in real time. Current trends show that the priority segments of the ecosystem today are the small business ecosystem, the family ecosystem, the incubator ecosystem (servicing startups and young entrepreneurs), the ecosystem focused on well-being and more.

Therefore, it can be stated that new digital technologies are being developed every day, which are gradually changing the behavior of customers and traditional business models. FinTech also helps financial institutions meet regulatory requirements by providing data verification and protection, reporting automation, etc. As a result, specialized regulatory technologies RegTech and supervisory technologies SupTech appeared. RegTech is a set of technologies that optimize the bank's compliance, that is, its system of control over compliance with regulatory requirements. SupTech is a set of technologies used by supervisors and market regulators (including central banks) to perform their functions and administrative tasks.

20.2. Major challenges of the digital transformation of the financial sector

According to the Fintech Adoption Index[13] global FinTech adoption doubles every two years: in 2015, 16% of consumers in the world use two or more financial technologies, in 2017 – 33%, and in 2019 it is two-thirds (64%). In 2019, 99% of consumers know about at least one money transfer and payments FinTech service, 75% use a money transfers and payments FinTech service, 48% of consumers use an insurance FinTech service. The most popular FinTech services are online payments, auto and health insurance services, investing and capital raising applications, online loan platforms, financial planning tools. On average, consumers demonstrate a high level of global awareness of FinTech services: money transfer and payments – 96%, budgeting and financial planning – 71%, savings and investment – 78%, borrowing – 76%, insurance – 86%. The high level of FinTech adoption is demonstrated by SMEs – 25%. In this case, 56% of SMEs use a banking and payments FinTech service, 46% of SMEs use a financing FinTech service. China and India lead by Fintech services – 87% of the digitally active population, Russia and the Republic of South Africa – 82%, the Netherlands – 73%, Ireland and the United Kingdom – 72%, Hong Kong, Singapore, South Korea – 67%.

If in 2017, the main factor in consumer choice of FinTech services was its simplicity, then in 2019, the main one is attractive fees or prices. According to experts, this is a sign of the maturity of the FinTech market. In addition, consumers increasingly trust FinTech services. 33% of FinTech adopters, when considering a new financial product before

[13] EY. (2019) Global FinTech Adoption Index 2019. As FinTech becomes the norm, you need to stand out from the crowd. Retrieved from: https://eyfinancialservicesthoughtgallery.ie/wp-content/uploads/2019/09/ey-global-fintech-adoption-index.pdf (accessed 10 December 2019)

turning to their main bank or insurer, consider proposals from other institutions. 46% of FinTech adopters are ready to share their banking information in exchange for better terms for receiving financial services or products.[14]

Therefore, the process of digital transformation of financial markets is proceeding fairly quickly, and is affected by global instability, technological, social, behavioral, demographic changes, the increase of interconnection between developed and emerging markets, the rise of state-directed capitalism, the increase of competition for natural resources, etc. In this case, digital transformation will be successful only when it is customer-oriented, that is, personal interests, priorities, consumer opportunities will be taken into account. Therefore, the growth of financial institutions depends on attracting new customers and the growth of the range of products. But their ROEs remain stubbornly low, customers expect lower prices for services and higher quality, and competitive advantages identify the factors that require significant investment: innovation, new product development, staff talent development, etc.

Among major threats to the growth of financial institutions the following were identified[15]: the speed of technological change (85%), consumer behavior change (69%), staff shortages (72%) (81% in the insurance industry), cyberattacks (73%), customer retention and confidence building in the conditions of fast spread of digital technologies (70%) (in particular, 76% in banking services and the capital market, 72% in insurance). 54% of top-level managers of the large US, European and Asian financial institutions believe that market leadership will remain with major banking institutions in 2020, and 55% believe that unconventional financial service providers are a threat to traditional banks.

Changing consumer behavior in the financial market in today's context is influenced by a variety of factors, including social, behavioral, demographic. Thus, behavioral changes, in particular, are manifested as more and more women control consumer spending, being the primary breadwinner of families, the top executives of big companies, including financial and investment. In addition, a growing share of wealth and

[14] EY. (2019) Global FinTech Adoption Index 2019. As FinTech becomes the norm, you need to stand out from the crowd. Retrieved from: https://eyfinancialservicesthoughtgallery.ie/wp-content/uploads/2019/09/ey-global-fintech-adoption-index.pdf (accessed 10 December 2019)

[15] PwC. (2018) Further and faster Accelerating workforce transformation – Key findings in the financial services sector. 21st CEO Survey. Retrieved from: https://www.pwc.com/gx/en/ceo-survey/2018/deep-dives/ceo-survey-financial-services-talent-report-web.pdf

capital goes to millennials. Both the groups are not interested in impetuous investments, and the vast majority of them regard investing as a way of expressing their social, political and environmental values. Women investors are twice as inclined to socially oriented investments and Impact investment than men [[16]]. An increasing proportion of consumers and the workforce are the generation Z, for which impressions are important and they are well aware of the real brand; their daily lives are the Internet, instant wireless multi-channel communication, e-commerce with next-day delivery, voice assistants, social networks, etc. They worry about their future, including their careers; money is one of their biggest stresses; however, they love human relationships and family and friends are important to them. At the same time, they prefer simple technologies that work efficiently and quickly.[17]

Demographic changes also have a significant impact on consumer expectations, in particular: urbanization is increasing; the average life expectancy is increasing, which is requiring longer retirement benefits; the population in developed countries is aging, which is shifting consumer priorities from consumption and lending to savings and investment; the share of the younger generation in developing countries is increasing, and thus the demand for consumer lending in these countries is increasing. This, in turn, requires dramatic changes at any point of contact throughout the journey of cooperation between the financial institution and the client.

The latest technologies are increasingly moving financial transactions and services to the network, the volume of cash is shrinking significantly, and therefore the need for traditional branches is diminishing. 77% of people at the age of 18-21, who spend money today, make P2P payments[18]. In these conditions, the cost of maintaining branches is increasing, and therefore the only argument for their continued existence is to become more productive or reduce costs significantly. It is clear that the number of branches will decrease, but it is not advisable to abandon them at all. They must be transformed and become advisory centers, in particular «interaction centers» or «smart

[16] VanderBrug Jackie. (2017) Women, millennials, and investing for impact. How Gender and Generation Could Help Reshape the World. Investments & Wealth Institute, formerly IMCA.

[17] Cocheo S. (2018) 15 Things Banks & Credit Unions Must Know Before Targeting Gen Z. *The Financial Brand*. June 10, 2019 Retrieved from: https://thefinancialbrand.com/84367/bank-credit-union-marketing-gen-z-generation/

[18] Ibid.

kiosks». An attractive development strategy is the partnerships between traditional institutions and FinTech companies, providers, which will allow to build a wider ecosystem and thus increase their own competitiveness.

An important aspect of the further development of financial institutions is the staff managemen. Despite digitalization, according to the survey[19], only 19% of financial institutions have planned to cut staff in the nearest time (12 months), on the contrary, 51% have planned to increase, and 30% have thought of leaving it unchanged. It is revealed that the main trend is the change of job responsibilities (85% of the top-level managers surveyed). 91% notice on the necessity to strengthen soft skills, to develop creativity, emotional intelligence; 75% of managers are concerned about the lack of digital skills in the industry, 76% in their organizations. As a result, 63% of institutions have implemented digital training courses in employee training programs; 49% analyze the benefits of employees collaborating with automated systems; 41% predict the impact of automated intelligence on what skills will be relevant in the future.

Thus, on the one hand, the diffusion of the advanced technologies is reducing the demand for human resources, and, on the other hand, there is a shortage of professionals that are able to meet current needs. Staff shortage is recognized as one of the main factors in the possible slowdown in the financial sector growth and a decline in customer confidence in the near future. In these circumstances, the staff should develop to become curators, instructors, consultants, employees who help each client to receive an individualized set of products and services.

The transformation of the financial sector requires not only new skills and competencies from the staff, but also a new staff management policy focused on talent search and development. This requires one-on-one training for staff throughout their lives, participation in conferences and co-working communities, communication with industry leaders, «digital tourism», etc. An important aspect is the formation of a fundamentally new, both internal and external, culture of financial institutions, as well as a rethinking of the leadership paradigm. The base of this is implementing a new financial institution thinking strategy from strategy to operations: the adoption of a «customer mindset». 90% of

[19] PwC. (2018) Further and faster Accelerating workforce transformation – Key findings in the financial services sector. 21st CEO Survey. Retrieved from: https://www.pwc.com/gx/en/ceo-survey/2018/deep-dives/ceo-survey-financial-services-talent-report-web.pdf (accessed 10 December 2019)

consumers think that personalization is very attractive, 80% of consumers are more likely to do business with a company that offers personalized experience. However, 94% of surveyed banking institutions cannot fulfill their promises of personalization[20].

Therefore, financial institutions, growth-oriented in the context of digitalization, should take into account:

– not to sell products or services, but to serve customers (needs, feelings, emotions, customer behavior), providing them with real value, changing the lives of consumers for the better;

– a customer who consumes a digital product is attracted to emotions, not information;

– customer benefits are created not by features but by solutions that best meet their needs; therefore, customers are not willing to pay for features and prefer simple but efficient services;

– the architecture of a consumer-oriented financial product should be holistic, not fragmented; a product is an experience that can last for years;

– not to protect your product, customer, organization from competitors, etc., but to disrupt it, to accept changes, to take risks, to disrupt yourself (The Innovator's Dilemma);

– the competitive advantages will be given to those institutions that will not expect and accept innovative changes from the outside, but will initiate and effect digital transformation within the organization on the basis of the «Thinking Newbie» strategy;

– personalization is not segmentation, differentiation or cross-selling; it is the result of effective use of analytics;

– consumers' preference for anonymity should be respected, and in these circumstances, financial institutions should be prepared to resist the personalization, mistaken, and insincere positions of clients when interviewing;

– a brand not for a buyer but a buyer as part of a brand;

– a partnership allows to create a wider ecosystem, thus creating additional competitive advantage for financial institutions or financial products.

Despite the rapid pace of spreading of the latest technologies in the financial sector, the level of satisfaction with financial services remains

[20] Marous J. (2020) 2020 Retail Banking Trends and Priorities. Retail Banking Trends and Priorities, number 246, 119 p. Retrieved from: https://www.digitalbankingreport.com/trends/2020-retail-banking-trends-and-priorities/

low. In 2018, it is estimated that only one in five customers has experienced a significant improvement in the level of banking service through innovation. And among the reasons for this there is the fact that only 28% of digital transformation initiatives start with consumer needs. 68% of the initiative focuse on business processes and 4% focuse on employees[21]. On the one hand, financial institutions are focused on providing services 24/7/365, and, on the other hand, digital consumers still want to interact with people.

Therefore, it is not enough to provide online and mobile functionality to create a successful digital financial institution. A digital organization is a customer-oriented all-encompassing process that involves employee actions and behaviors, both internal and external, and enables decision-making on behalf of the customer. At the same time, a high level of client's trust in the organization regarding the present and future cooperation should be ensured. Therefore, the significant components of digital transformation of financial institutions at the present stage are: attraction of innovations and technologies necessary for their development; timely modernization of the organizational structure; implementation of new customer-oriented business models of development; optimization of distribution of financial services and products; formation an effective digital top-down organization culture, policies on recruitment, motivation and development of talents; proactively managing risk, regulations and capital.

20.3. FinTech: Transforming the structure of financial markets and the role of regulators

As a result of the spread of FinTech, we can distinguish the following phenomena that significantly affect the conditions in which financial market entities operate and thus transform the structure of the financial market:

Firstly, financial services providers are emerging in the new financial ecosystem, which, through innovation, reduces the costs and time of operations, makes them simple, convenient, and most comfortable for consumers. This has an impact on the market and behavior of traditional financial institutions, since higher efficiency of

[21] Marous J. (2018) Digital Banking Transformation Strategies Neglect The Customer Experience. *The Financial Brand*. July 17. Retrieved from: https://thefinancialbrand.com/85798/digital-banking-transformation-customer-experience-trends/?internal-link

providers either provides additional competitive advantages for traditional financial institutions or creates additional risks.

Secondly, financial institutions are increasingly turning to third parties: information service providers, ISPs, cloud services, etc. As a result, in the financial sector, the share of third-party service providers is increasing, which isincreasing systemic and cyber security risks if they are not able to manage them. In doing so, the risks change structurally, which requires new approaches and methods to manage them.

Thirdly, BigTech companies (Amazon, Facebook, Google, Apple, Microsoft, Alibaba, Tencent) appear alongside FinTech companies. These are high-technology companies with unconventional structures, established networks, accumulated big data, which begin to provide innovative services and products in the financial space and compete with traditional financial institutions. Moreover, they form new standards of quality, convenience, speed for the consumer. 68% of consumers are willing to consider a financial services product offered by a non-financial services company[22].

As a result, the spread of FinTech reduces barriers to entry and exit; enhances the differentiation of financial products through, first of all, the design of financial products; causes the emergence of new market participants who differ in the principles of functioning and regulation by the state; changes the forms of interaction between market participants; promotes decentralization of the financial services system; increases economies of scale; reduces the cost of information asymmetry-related operations as well transactional costs; increases transparency of financial transactions. Overall, it will promote the diversity and competitiveness of the financial markets.

However, it should be noted that the role of traditional financial institutions will be diminished and modified: there will remain those who are able to understand the motivation and needs of consumers of financial services and products, and their brand will be a reflection of trust, honesty, security, quality; they will be able to collaborate productively with FinTech companies rather than compete with them. BigTech companies, on the one hand, will further increase competition, financial inclusion, pressure on traditional institutions to innovate and improve the overall efficiency of financial activities, and, on the other

[22] EY. (2019) Global FinTech Adoption Index 2019. As FinTech becomes the norm, you need to stand out from the crowd. Retrieved from: https://eyfinancialservicesthoughtgallery.ie/wp-content/uploads/2019/09/ey-global-fintech-adoption-index.pdf (accessed 10 October 2019)

hand, their activities will lead to the emergence of new forms of concentration and market power, will produce new systemic risks, the scale and consequences of which are much broader than those of traditional financial institutions.

Such trends require a revision of the regulatory policy paradigm, both in financial markets and in the related ones, in the context of ensuring the right balance between protecting consumers, promoting competitive markets, facilitating innovation, protecting the stability and reliability of the financial system. In this case, the issue of cooperation between market actors and regulators should be resolved not only by national coordination, but also by international, which is fundamental in the digitalization conditions of modern society. Priority areas for international cooperation should include: raising awareness on FinTech, regular risk assessment and developing the micro- and macroprudential regulatory framework. Operational risk management from third-party service providers, mitigating cyber risks, monitoring macro-financial risks deserve particular attention in this context.

In general, regulation of FinTech is still in its infancy, and regulatory frameworks differ significantly across countries. Consequently, the main task of FinTech regulation must be, on the one hand, to strike the right balance between fostering innovation and competition, and, on the other hand, to maintain integrity of the financial markets and ensure consumer protection. Government regulation and supervision should be flexible, fostering innovative projects and avoiding any obstacles to change that will eventually affect the supply of technology-intensive services in the future.

Modernization of the role of regulators should be upgraded on the basis of the following conditions[23]:

– from a rigid control system to a «market arbiter»;

– ensuring a balance between innovation and risk, fairness and technological neutrality;

– providing new ways of interaction between the entities of the new financial ecosystem (capital traders, capital providers, capital users, FinTech companies, risk managers, intermediaries, representatives of fundamental transactions, regulators, etc.;

[23] Lomachynska I. A., Mumladze A. A. Vplyv tekhnolohichnykh zmin na transformatsiyu finansovykh system [The impact of technological change on the transformation of financial systems]. *Proceedings of the Law, Economics and Management: Genesis, Current Status and Prospects for Development* (Ukraine, Odessa, September14–15, 2018). Odessa: Phoenix, pp. 252–255.

– ensuring a balance between promoting innovation and competition, on the one hand, and preserving the integrity of the financial markets and protecting the rights of consumers of financial services, on the other hand;

– ensuring the protection of information and intellectual property rights, informing of possible risks, coordinating financial education, etc.

Meeting these conditions requires a conceptual change in regulatory activity from institutions, companies to financial services, products, both nationally and internationally.

Consequently, innovation in the financial sector is an exceptional tool for progress. The introduction of digital technologies and the increased use of Big Data will help reduce costs and improve the quality of financial services. All this creates potential benefits for financial services producers, consumers and the economy as a whole.

CONCLUSIONS

Financial innovation is a new process, product, paradigm introduced by a financial or non-financial institution. And it is important to understand that there are «good» or «bad» FinTech. Unlike technological or scientific innovations, FinTech cannot be tested for diffusion, and effects can only be seen in the future. And, therefore, unsuccessful experiments by financial institutions with FinTech can end in loss of trust and reputation.

The transformation of financial systems under the influence of FinTech is inevitable. Consumers are gradually becoming the center of financial relations modernization. On the one hand, thanks to the new service sets, the customers are able to meet their needs fully through personalization of financial services, which involves customer-oriented strategies and business models, the design of financial products based on aggregated personalized values. On the other hand, the prospects for the continued existence of banking and other financial institutions will depend on their ability to understand the motivation and needs of consumers of financial services and products, their brand as a reflection of trust, honesty, security, quality. As a result, the main trends will be expansion of financial services, increase of availability of financial products and services for clients, reduction of expenses and increase of speed of provision of financial services on the basis of security, analytics, integration. The big amount of data will create new opportunities for statistical analysis and increase the transparency of financial services delivery and consumption.

Accelerating the pace of technological change is both the most creative force and the most destructive. Thus, the formation of new financial relationships is accompanied by an increase in new risks, in particular, information security, uncertainty, including financial stability, lack of control over the informal flow of financial resources, lack of awareness and literacy, etc. One of the biggest problems is the need for ensuring cybersecurity.

The global nature of digitalization is also affecting regulators. The priorities of their operation in the new environment are protection of consumer rights, development of competition, protection of stability and reliability of the financial system. Regulation and supervision should be flexible, encouraging innovative projects and avoiding any obstacles to change. The new ecosystem promotes New Tech's entry into regulatory activity as well, as a result of which RegTech and SupTech's specialized technologies are being actively developed.

SUMMARY

Under the influence of globalization, technological changes, and innovations, the financial system acquires new characteristics, properties, elements, as new financial instruments and innovations emerge in the financial environment, and shifts in demand for them occur. Competition between financial instruments and financial innovations leads to the expansion of functionalities of the financial system, increases the efficiency of its functioning and modifies the role of the financial system in the economy. As a result of the rapid diffusion of financial technologies, a new financial ecosystem is formed as a system of interaction between financial service providers, regulators, consumers based on competition and cooperation in order to meet the needs of the customer-consumer. Both financial and non-financial institutions, such as FinTech companies or BigTech companies, can serve as financial services providers.

FinTechs are changing the structure of financial systems. At the same time, the center of financial relations modernization is gradually becoming a consumer, whose behavior in the financial market today is being transformed under the influence of various factors, such as technological, social, behavioral, demographic, etc. Therefore, it is not enough to provide online and mobile functionality to create a successful digital financial institution. A digital organization is a customer-oriented all-encompassing process that involves employee actions and behaviors, both internal and external, and enables decision-making on behalf of the customer. At the same time, a high level of client's trust in the organization regarding the present and future cooperation should be ensured. Therefore, the significant components of digital transformation of financial institutions at the present stage are: attraction of innovations and technologies necessary for their development; timely modernization of the organizational structure; implementation of new customer-oriented business models of development; optimization of distribution of financial services and products; formation an effective digital top-down organization culture, policies on recruitment, motivation and development of talents; proactively managing risk, regulations and capital. Such trends require a revision of the regulatory policy paradigm, both in financial markets and in the related ones, in the context of ensuring the right balance between protecting consumers, promoting competitive markets, facilitating innovation, protecting the stability and reliability of the financial system. An important aspect is ensuring cybersecurity.

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